Investigation of Effects of Water Spreading on Improvement of Iran's Rangelands

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Key words : water spreading , Iran's Rangelands , arid and semi-arid regions , water resources

Introduction Area of rangelands of Iran is estimated at about 90 million ha (54% of Iran total area) .These rangelands have the richest flora in the world and more than 6000 species of plants .

Materials and methods Eleven water spreading (W .S) projects from total 36 W .S stations available in Iran , were selected (these eleven stations have suitable distribution across Iran , so results can be approximately representative of the total conditions of Iran) .For evaluating their efficiency and effects on range improvement , data from before and after doing W .S , informal reports and field surveys in these stations were collected and analyzed .These stations are , 1-Gareh Baygan , 2-Jajram , 3-Khuzestan , 4-Varamin , 5-Poldasht , 6-sabzevar , 7-Gonabat-kalat , 8-Sahrin-ghare , 9-Ab-barike-bam , 10-Sefid rood , and 11-Ghoshe damghan .These are located in the Center , the West , the East , the North East , the North West and the South West of Iran .

Results The results can be classified following 3 issues
The effects of W .S on quantitative and qualitative varieties of vegetation cover In Gareh Baygan investigation of data before and after doing W .S , shows that vegetation cover changed from 20% to 34 .07% , the area of poor rangelands around the station have decreased from 7500 ha to 2352 ha .Production of *Salsola tomentosa* has increased about 60% , forage production changed from 101 kg/ha has became 501 and 825 kg/ha , range capacity changed from 0 .07 animal units /year to 0 .34 and 0 .56 animal units /year , range condition changed from very poor to average and good and range trend from down ward to upward (Nejabat 1999) .

The effects of W .S on soil properties In the Sefid Rood results of soil analysis show that after W .S saturation percent was increasing , electrical conductivity was decreasing , and pH content was increasing .W .S decreases the amount of property damage caused by floods , feeds the underground aquifer and improves the farming soil and physical properties of soil .

Bio-Ecological effects of W .S In Gonabat-kalat due to improvement of plant coverage after W .S , a very appropriate food has been provided for the animals , so the animals have come to the area and this improves animal production .
The results of W .S in Gareh Baygan shows that there is reduced mobility and migration of people in the range lands in which there were problems such as shortage of appropriate water and forage for animals .

Conclusions Iran is located in arid and semi arid of the world with mean annual rainfall of ca .240 mm and irregular spatial and temporal distribution .In such conditions rangelands are the primary sources of water for different uses , so different methods of water harvesting such as W .S can be applied to improve water recourses of rangelands .Many rangelands of Iran are suitable for W .S and this technique improves conditions of ground water , soil , vegetation cover , and forage production of rangelands . Results of this study show the positive effects of W .S on rangelands .The experiences of Iran in this case can be employed in the other countries with similar conditions to Iran .

Reference
Nejabat , M .1999 .Improving environmental characteristics in a wide area around a floodwater spreading system , a case study , 9th International congress on rainwater catchments system .Brazil , Brazil .